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Terms: 38049 (Edit Search)

V

759058 (08) RE 38049 March 25, 2003

UNITED STATES PATENT AND TRADEMARK OFFICE GRANTED PATENT RE 38049

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Link to Claims Section

March 25, 2003

Optimized container stacked capacitor dram cell utilizing sacrificial oxide deposition and chemical mechanical polishing

INVENTOR: Dennison, Charles H. - Meridian, Idaho; Walker, Michael A. - Boise, Idaho

APPL-NO: 759058 (08)

FILED-DATE: October 7, 1996

GRANTED-DATE: March 25, 2003

ASSIGNEE-AT-ISSUE: Micron Technology, Inc., Boise, Idaho, 02

LEGAL-REP: Traskbritt

PUB-TYPE: March 25, 2003 - Reissue Patent (E1)

PUB-COUNTRY: United States (US)

REL-DATA:

Continuation of Ser. No. 07/850746, March 13, 1992, GRANTED PATENT 5162248, Utility Patent having no previously published pre-grant publication (A)

Reissue of: 07/973092, November 6, 1992, PENDING 05270241, December 14, 1993

US-MAIN-CL: 438#396

US-ADDL-CL: 438#253, 438#238, 438#692, 438#633, 216#6

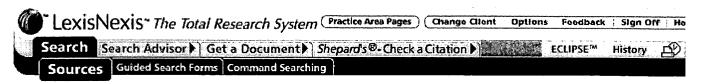
CL: 438, 216

SEARCH-FLD: 148#DIG014, 438#396, 438#397, 438#398, 438#253, 438#254, 438#255,

438#238, 438#692, 438#633, 216#633, 216#6

IPC-MAIN-CL: 7H 01L021#20

PRIM-EXMR: Nguyen, Tuan H.



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Terms: patno=5162248 (Edit Search)

850746 (07) 5162248 November 10, 1992

UNITED STATES PATENT AND TRADEMARK OFFICE GRANTED PATENT 5162248

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Link to Claims Section

November 10, 1992

Optimized container stacked capacitor DRAM cell utilizing sacrificial oxide deposition and chemical mechanical polishing

REISSUE: Reissue Application filed Oct. 7, 1996 (O.G. Feb. 4, 1997) Ex. Gp. 1104; Re. S.N. 08/759,058, (O.G. February 4, 1997)

INVENTOR: Dennison, Charles H., Boise, ID; Walker, Michael A., Boise, ID

APPL-NO: 850746 (07)

FILED-DATE: March 13, 1992

GRANTED-DATE: November 10, 1992

ASSIGNEE-AT-ISSUE: Micron Technology, Inc., Boise, ID

ASSIGNEE-AFTER-ISSUE: March 13, 1992 - ASSIGNMENT OF ASSIGNORS INTEREST., MICRON TECHNOLOGY, INC. A CORP. OF DELAWA RE 2805 E. COLUMBIA ROAD BOISE IDAHO 83706, Reel and Frame Number: 006079/0156

LEGAL-REP: Paul, David J.

PUB-TYPE: November 10, 1992 - Utility Patent having no previously published pre-grant

publication (A)

PUB-COUNTRY: United States (US)

US-MAIN-CL: 438#396

CL: 438

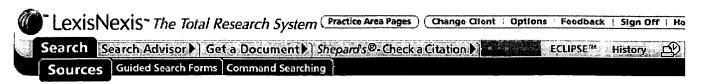
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437#985, 357#236, 365#149

IPC-MAIN-CL: H 01L021#70

PRIM-EXMR: Thomas, Tom

REF-CITED:



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Terms: patno=5270241 (Edit Search)

973092 (07) 5270241 December 14, 1993

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December 14, 1993

Optimized container stacked capacitor DRAM cell utilizing sacrificial oxide deposition and chemical mechanical polishing

REISSUE: Reissue Application filed Dec. 12, 2001 (O.G. Apr. 9, 2002) Ex. Gp.: 1634; Re. S.N. 10/030 741 (O.G. April 9, 2003)

S.N. 10/020,741, (O.G. April 9, 2002)

March 25, 2003 - This Patent was reissued as Reissue Patent RE 38,049 (O.G. March 25, 2003)

INVENTOR: Dennison, Charles H., Boise, ID; Walker, Michael A., Boise, ID

APPL-NO: 973092 (07)

FILED-DATE: November 6, 1992

GRANTED-DATE: December 14, 1993

ASSIGNEE-AT-ISSUE: Micron Technology, Inc., Boise, ID

LEGAL-REP: Paul, David J.

PUB-TYPE: December 14, 1993 - Utility Patent having no previously published pre-grant

publication (A)

PUB-COUNTRY: United States (US)

REL-DATA:

Addition of Ser. No. 5162248

Addition of Ser. No. 850746, March 13, 1992

US-MAIN-CL: 438#396

US-ADDL-CL: 216#6, 438#633, 438#692

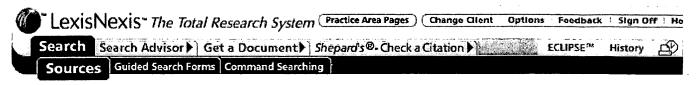
CL: 438, 216, 438

SEARCH-FLD: 437#47, 437#48, 437#52, 437#60, 437#225, 437#228, 437#235,

437#919, 437#986, 257#306

IPC-MAIN-CL: H 01L021#70

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1 / 1 PLUSPAT - , QUESTEL-ORBIT

PN - USRE38049 El 20030325 [USRE38049]

TI - (E1) Optimized container stacked capacitor dram cell utilizing sacrificial oxide deposition a mechanical polishing

PA - (E1) MICRON TECHNOLOGY INC (US)

PAO - Micron Technology, Inc., Boise ID [US]

IN - (E1) DENNISON CHARLES H (US); WALKER MICHAEL A (US)

AP - US75905896 19961007 [1996US-0759058]

FD - Reissue of: US5270241 - 19931214

Continuation of: US5162248

PR - US75905896 19961007 [1996US-0759058] US97309292 19921106 [1992US-0973092] US85074692 19920313 [1992US-08507461

IC - (E 1) HOIL-021/20 EC - HOIL-021/02B)C2V2

PCL - ORIGINAL, (O): 438396000; CROSS-REFERENCE (X): 438253000 438238000 438692 216006000

DT - Corresponding document

CT - US4432799; US4671851; US4785337; US4877750; US4944836; US5045899; US5150276 US5185282; US5313089; US5364809; JP0286270; JP0094554; JP0074752 "Stacked Capacitor DRAM Cell with Vertical Fins", IBM TDB, Jul. 1990, pp. 245-247.*

"Crown-Shaped Stacked-Capacitor Cell for 1.5-V Operation 64-Mb Dram's" by T. Kaga et Transactions on Electron Devices, vol. 38, No. 2, Feb. 1991, pp. 255-261.*

"A Stacked Capacitor Cell with Ring Structure" by N. Shinmura et al., pp. 833-836. (Exten 22nd International Conference on Solid State Devices 1990).

STG - (E1) Reissue Patent

AB - An existing stacked capacitor fabrication process is modified to construct a three-dimension container capacitor. The present invention develops the container capacitor by etching an o opening) into a low etch rate oxide. The contact opening is used as a form for deposited po conforms to the sides of the opening walls. Within the thin poly lining of the oxide contain oxide, such as ozone TEOS, is deposited over the entire structure thereby bridging across th container. The high etch-rate oxide is planarized back to the thin poly and the resulting exp removed to separate neighboring containers. The two oxides, having different etch rates, ar thereby leaving a free-standing poly container cell with 100°/0 (or all) of the higher etch rate and a pre-determined oxide surrounding the container still intact.

UP - 2003-14

Query/Command : file inpadoc

Query/Command: fam us5270241/pn

1 Patent Groups

** SS 7: Results 6

Search statement 8

Query/Command: famstate nonstop

1/6 INPADOC - COINPADOC

PN - DE 4307725 C2 20020814 [DE43077251

TI - VERFAHREN ZUR HERSTELLUNG EINER STAPELKONDENSATOR-DRAM-ZELLE

IN - DENNISON CHARLES H [US]; WALKER MICHAEL A [US]

PA - MICRON TECHNOLOGY INC [US]

AP - DE 4307725/93-A 19930311 [1993DE-4307725]

PR - US 850746/92-A 19920313 [1992US-0850746]

IC - HO 1 L-021 /8242

1/1 LEGALI - ©LEGSTAT

PN - DE 4307725 [DE4307725]

AP - DE 4307725/93 19930311 [1993DE-4307725]

DT - DE-P

ACTE - 19930311 DE/AE-A

DOMESTIC APPLICATION (PATENT APPLICATION)

DE 4307725/93 19930311 [1993DE-4307725]

19930916 DE/A1 [+]

LAYING OPEN FOR PUBLIC INSPECTION

19990512 DE/8110 [+]

REQUEST FOR EXAMINATION PARAGRAPH 44

20020814 DE/D2 [+]

GRANT AFTER EXAMINATION

20030213 DE/8364 [+]

NO OPPOSITION DURING TERM OF OPPOSITION

UP - 2003-07

2/6 INPADOC - ©INPADOC

PN - DE 4307725 A1 19930916 [DE4307725]

TI - VERFAHREN ZUR HERSTELLUNG EINER STAPELKONDENSATOR-DRAM-ZELLE

IN - DENNISON CHARLES H [US]; WALKER MICHAEL A [US]

PA - MICRON TECHNOLOGY INC [US]

AP - DE 4307725/93-A 19930311 [1993DE-4307725]

PR - US 850746/92-A 19920313 [1992US-0850746]

IC - H01L-027/108; H01L-021/72

1/1 LEGALI - ©LEGSTAT

PN - DE 4307725 [DE4307725]

AP - DE 4307725/93 19930311 [1993DE-4307725]

DT - DE-P

ACTE - 19930311 DE/AE-A

DOMESTIC APPLICATION (PATENT APPLICATION)

DE 4307725/93 19930311 [1993DE-4307725]

19930916 DE/A1 [+]

LAYING OPEN FOR PUBLIC INSPECTION

19990512 DE/8110 [+]

REQUEST FOR EXAMINATION PARAGRAPH 44

20020814 DE/D2 [+]

GRANT AFTER EXAMINATION

20030213 DE/8364 [+]

NO OPPOSITION DURING TERM OF OPPOSITION

UP - 2003-07

3/6 INPADOC - ©INPADOC

PN - JP 6013570 A2 19940121 [JP06013570]

TI - OPTIMUM-STACK TYPE CAPACITOR DRAM CELL UTILIZING VAPOR DEPOSITI

SACRIFICE OXIDE FILM AND CHEMICAL/ MECHANICAL POLISHING

IN - CHIYAARUZU EICHI DENISON; MAIKERU EI UOOKAA

PA - MICRON TECHNOLOGY INC

AP - JP 78582/93-A 19930315 [1993JP-0078582]

PR - US 850746/92-A 19920313 [1992US-0850746]

IC - H01L-027/108; H01L-027/04

4/6 INPADOC - ©INPADOC

PN - JP 2826036 B2 19981118 [JP2826036]

IN - CHAARUZU EICHI DENISON; MAIKERU EI UOOKAA

PA - MICRON TECHNOLOGY INC

AP - JP 78582/93-A 19930315 [1993JP-0078582]

PR - US 850746/92-A 19920313 [1992US-0850746]

IC - H01L-027/108; H01L-021/822; H01L-021/8242; H01L-027/04

5/6 INPADOC - ©INPADOC

PN US 5162248 A 19921110 [US5162248]

TI OPTIMIZED CONTAINER STACKED CAPACITOR DRAM CELL UTILIZING SACR

DEPOSITION AND CHEMICAL MECHANICAL POLISHING

IN DENNISON CHARLES H [US]; WALKER MICHAEL A [US]

PA MICRON TECHNOLOGY INC [US]

AP US 850746/92-A 19920313 [1992US-0850746]

PR US 850746/92-A 19920313 [1992US-0850746]

IC H01L-021/70

1/1 LEGALI - ©LEGSTAT

PN US 5162248 [US5162248]

AP US 850746/92 19920313 [1992US-0850746]

DT US-P

ACTE -19920313 US/AE-A

APPLICATION DATA (PATENT)

US 850746/92 19920313 [1992US-0850746]

19920313 US/AS02

ASSIGNMENT OF ASSIGNOR'S INTEREST

MICRON TECHNOLOGY, INC. A CORP. OF DELAWARE 2805 E. COLUMBIA ROA

8 * DENNISON, CHARLES H.: 19920313; WALKER, MICHAEL A.: 19920313

19921110 US/A

PATENT

19970204 US/RF

REISSUE APPLICATION FILED

961007

UP 1999-13

6/6 INPADOC - ©INPADOC

PN US 5270241 A 19931214 [US5270241]

TI OPTIMIZED CONTAINER STACKED CAPACITOR DRAM CELL UTILIZING SACR DEPOSITION AND CHEMICAL MECHANICAL POLISHING

IN DENNISON CHARLES H [US]; WALKER MICHAEL A [US]

PA MICRON TECHNOLOGY INC [US]

AP US 973092/92-A 19921106 [1992US-0973092]

US 850746/92-A1 19920313 [1992US-0850746] PR

IC H01L-021/70 1/1 LEGALI - ©LEGSTAT

PN - US 5270241 [US5270241]

AP - US 973092/92 19921106 [1992US-0973092]

DT - US-P

ACTE - 19921106 US/AE-A

APPLICATION DATA (PATENT)

US 973092/92 19921106 [1992US-0973092]

19931214 US/A

PATENT

20020409 US/RF

REISSUE APPLICATION FILED

20011212

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1/1 PLUSPAT - ©QUESTEL-ORBIT - image

PN - US5270241 A 19931214 [US5270241]

TI - (A) Optimized container stacked capacitor DRAM cell utilizing sacrificial oxide deposition mechanical polishing

PA - (A) MICRON TECHNOLOGY INC (US)

PAO - Micron Technology, Inc., Boise ID [US]

IN - (A) DENNISON CHARLES H (US); WALKER MICHAEL A (US)

AP - US97309292 19921106 [1992US-0973092]

FD - Cont. of US850746 19920313 [1992US-0850746]

Continuation of: US5162248

PR - US97309292 19921106 [1992US-0973092] US85074692 19920313 [1992US-0850746]

IC - (A) H01L-021/70

EC - H01L-021/02B3C2D

H01L-021/02B3C2V2

PCL - ORIGINAL (O): 438396000; CROSS-REFERENCE (X): 216006000 257E21014 257E21 438692000

130032000

DT - Corresponding document

CT - US4671851; US4944836; US5045899; JP0286270; JP0074752; JP0094554 "Stacked Capacitor DRAM Cell with Vertical Fins" IBM TDB, Jul. 1990, pp. 245-247.

"Crown-Shaped Stacked-Capacitor Cell for 1.5-V Operation 64-Mb Dram's" by T. Kaga et Transactions on Electron Devices, vol. 38, No. 2, Feb. 1991, pp. 255-261.

"A Stacked Capacitor Cell with Ring Structure" by N. Shinmura et al., pp. 833-836. (Exten the 22rd International Conference on Solid State Devices, 1990).

STG - (A) United States patent

AB - An existing stacked capacitor fabrication process is modified to construct a three-dimension container capacitor. The present invention develops the container capacitor by etching an o opening) into a low etch rate oxide. The contact opening is used as a form for deposited po conforms to the sides of the opening walls. Within the thin poly lining of the oxide contain oxide, such as ozone TEOS, is deposited over the entire structure thereby bridging across th container. The high etch-rate oxide is planarized back to the thin poly and the resulting exp removed to separate neighboring containers. The two oxides, having different etch rates, ar thereby leaving a free-standing poly container cell with 100% (or all) of the higher etch rate and a pre-determined oxide surrounding the container still intact.

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PN - US 5270241 [US5270241]

AP - US 973092/92 19921106 [1992US-0973092]

DT - US-P

ACT - 19921106 US/AE-A

APPLICATION DATA (PATENT)

US 973092/92 19921106 [1992US-0973092]

19931214 US/A

PATENT

20020409 US/RF

REISSUE APPLICATION FILED

20011212

UP - 2002-17

1/1 CRXX - ©CLAIMS/RRX

AN - 2426555

PN - 5,270,241 A 19931214 [US5270241]

PA - Micron Technology Inc

PT - C (Chemical)

ACT - 20011212 REISSUE REQUESTED

ISSUE DATE OF O.G.: 20020409

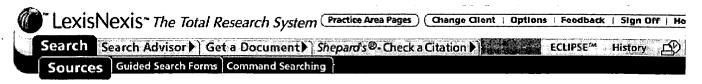
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UACT - 2002-04-09



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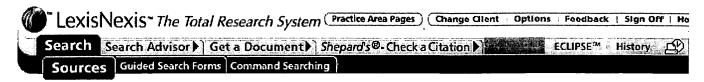
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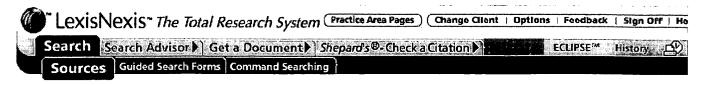
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